

# Suspended Scaffolds

WAC 296-874-300

## Section Contents

### YOUR RESPONSIBILITY:

#### To meet these requirements when using suspended scaffolds

Make sure suspended scaffolds and scaffold components meet these strength requirements

WAC 296-874-30002..... 300-3

Make sure suspended scaffold outrigger beams meet these requirements

WAC 296-874-30004..... 300-5

Make sure counterweights are safe and used properly

WAC 296-874-30006..... 300-6

Make sure tiebacks meet these requirements

WAC 296-874-30008..... 300-7

Make sure suspended scaffold support devices meet these requirements

WAC 296-874-30010..... 300-8

Make sure scaffold hoists meet these requirements

WAC 296-874-30012..... 300-8

Make sure scaffold hoists retain enough suspension rope

WAC 296-874-30014..... 300-9

Make sure wire rope is in good condition

WAC 296-874-30016..... 300-10

Make sure wire suspension rope connections meet these requirements

WAC 296-874-30018..... 300-11

Make sure wire rope clips are used properly

WAC 296-874-30020..... 300-11

Prevent swaying of two-point and multi-point suspension scaffolds

WAC 296-874-30022..... 300-12



# Suspended Scaffolds

WAC 296-874-300

## Section Contents

### (Continued)

Use emergency escape and rescue devices appropriately WAC 296-874-30024.....	300-13
Protect suspension ropes from heat or corrosive substances WAC 296-874-30026.....	300-13
Take precautions while welding WAC 296-874-30028.....	300-14
Prohibit use of gasoline-powered equipment on suspended scaffolds WAC 296-874-30030.....	300-15
Meet these requirements when using catenary scaffolds WAC 296-874-30032.....	300-15
Meet these requirements when using float (ship) scaffolds WAC 296-874-30034.....	300-16
Meet these requirements when using interior hung scaffolds WAC 296-874-30036.....	300-17
Meet these requirements when using multi-level suspended scaffolds WAC 296-874-30038.....	300-17
Meet these requirements when using multi-point adjustable suspension scaffolds WAC 296-874-30040.....	300-18
Meet these requirements when using needle beam scaffolds WAC 296-874-30042.....	300-19
Meet these requirements when using single-point adjustable suspension scaffolds WAC 296-874-30044.....	300-20
Meet these requirements when using two-point adjustable suspension scaffolds (swing stages) WAC 296-874-30046.....	300-22



# Suspended Scaffolds

WAC 296-874-300

## Rule

**WAC 296-874-30002**

**Make sure suspended scaffolds and scaffold components meet these strength requirements**

### You must

- Meet the following strength requirements:
  - Suspended scaffolds must support, without failure, the total of their own weight plus 4 times the maximum intended load
  - Suspended scaffold components must meet the requirements contained in Table 4, Suspended Scaffold Strength Requirements.
- Surfaces that support scaffold support devices must withstand 4 times the rated load of the hoist:



**Note:**

- Scaffold support devices include outrigger beams, cornice hooks, parapet clamps, and similar devices.

– Continued–

Suspended  
Scaffolds



# Suspended Scaffolds

WAC 296-874-300

## Rule

### WAC 296-874-30002 (Continued)

You must

**Table 4**  
**Suspended Scaffold Strength Requirements**

These scaffold components	Must meet these strength requirements
<ul style="list-style-type: none"><li>Adjustable scaffold<ul style="list-style-type: none"><li>Suspension ropes, including connecting hardware</li></ul></li></ul>	Support 6 times the rated load of the hoist
<ul style="list-style-type: none"><li>Adjustable scaffold<ul style="list-style-type: none"><li>Direct connections to roofs and floors</li><li>Counterweights used to balance the scaffold</li></ul></li></ul>	Resist 4 times the tipping moment with the scaffold operating at the rated load of the hoist
<ul style="list-style-type: none"><li>Non-adjustable scaffold<ul style="list-style-type: none"><li>Suspension ropes, including connecting hardware</li></ul></li></ul>	Support 6 times the maximum intended load applied or transmitted to the rope
<ul style="list-style-type: none"><li>All other scaffold components</li></ul>	Support its own weight plus 4 times the maximum intended load



# Suspended Scaffolds

WAC 296-874-300

## Rule

### WAC 296-874-30004

#### Make sure suspended scaffold outrigger beams meet these requirements

##### You must

- Make sure outrigger beams are made of structural metal or equivalent strength material.
- Stabilize the inboard ends of outrigger beams by using either:
  - Bolts or other direct connections to the floor or roof deck**or**
  - Counterweights and tiebacks.



##### Exemption:

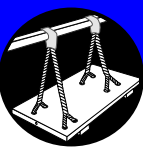
- Masons' multi-point adjustable scaffold outrigger beams can **not** be stabilized by counterweights.

##### You must

- Make sure, before the scaffold is used, that a competent person:
  - Evaluates the direct connections**and**
  - Confirms that the supporting surfaces can support the loads placed on them.
- Make sure suspended scaffold outrigger beams are all of the following:
  - Restrained to prevent moving
  - Provided with stop bolts or shackles at both ends
  - Securely fastened together with the flanges turned out when channel iron beams are used in place of I-beams
  - Set and maintained with the web in a vertical position
  - Placed so the suspension rope is centered over the stirrup.

– Continued–

Suspended  
Scaffolds



# Suspended Scaffolds

WAC 296-874-300

## Rule

### WAC 296-874-30004 (Continued)

#### You must

- Place outrigger beams at a right angle (perpendicular) to their bearing support.



#### Exemption:

- Outrigger beams can be placed at other than a right angle (perpendicular) if:
  - You can demonstrate that immovable obstructions make it impossible to place the beams at a right angle (perpendicular) to their bearing support
- and**
- Opposing angle tiebacks are used.



#### Note:

- The angle between the outrigger beam and the bearing support is usually the same as the angle between the outrigger beam and the face of the building or structure.

### WAC 296-874-30006

### Make sure counterweights are safe and used properly

#### You must

- Make sure counterweights:
  - Are made of material that can't flow
- and**
- Have been specifically designed to be used as counterweights.



#### Note:

- The following can't be used as counterweights:
  - Sand, gravel and similar materials that can be easily dislocated
- and**
- Construction material such as masonry units and roofing felt.

– Continued–



# Suspended Scaffolds

WAC 296-874-300

## Rule

### WAC 296-874-30006 (Continued)

#### You must

- Secure counterweights to outrigger beams by mechanical means to prevent them from being accidentally detached.
- Leave counterweights attached to the outrigger beams until after the scaffold has been disassembled

### WAC 296-874-30008

#### Make sure tiebacks meet these requirements

#### You must

- Make sure tiebacks are equivalent in strength to the suspension ropes.
- Make sure tiebacks are secured to a structurally sound anchorage on the building or structure and installed:
  - At a right angle (perpendicular) to the face of the building or structure
  - or**
  - As opposing angle tiebacks.



# Suspended Scaffolds

WAC 296-874-300

## Rule

### WAC 296-874-30010

#### Make sure suspended scaffold support devices meet these requirements

##### You must

- Make sure suspended scaffold support devices, such as cornice hooks, roof hooks, roof irons, parapet clamps, or similar devices, are:
  - Made of steel, wrought iron, or other material of equivalent strength
  - Supported by bearing blocks
  - Prevented from moving by using tiebacks.



##### Reference:

- For outrigger beam requirements, go to WAC 296-874-30004.
- For tieback requirements, go to WAC 296-874-30008.

### WAC 296-874-30012

#### Make sure scaffold hoists meet these requirements

##### You must

- Make sure the stall load of any scaffold hoist is **not** more than 3 times its rated load.
- Make sure the design of scaffold hoists has been tested by an independent nationally recognized testing laboratory.

– Continued–





# Suspended Scaffolds

WAC 296-874-300

## Rule

### WAC 296-874-30012 (Continued)

#### You must

- Make sure scaffold hoists have both a:
  - Normal operating brake
- and**
- Braking device or locking pawl which automatically engages when the hoist has an uncontrolled:
  - Instantaneous change in momentum
- or**
- • An accelerated overspeed.
- Prohibit use of gasoline-powered hoists on suspended scaffolds.
- Enclose the gears and brakes of power-operated hoists used on suspended scaffolds.
- Make sure manually-operated hoists need a positive crank force to descend.

### WAC 296-874-30014

#### Make sure scaffold hoists retain enough suspension rope

#### You must

- Make sure the suspension rope on winding drum hoists is long enough to wrap around the drum at least 4 times when the scaffold is at its lowest point of travel.
- Make sure the suspension rope on hoists that do not use a winding drum:
  - Is long enough to allow the scaffold to be lowered to the level below without the rope end passing through the hoist
- or**
- Has the rope end configured, or uses other means, to prevent it from passing through the hoist.

Suspended  
Scaffolds



# Suspended Scaffolds

WAC 296-874-300

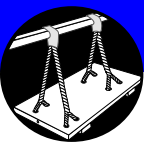
## Rule

**WAC 296-874-30016**

**Make sure wire rope is in good condition**

### You must

- Make sure a competent person inspects each rope for defects:
  - Before each work shift**and**
  - After anything happens that could affect the rope's integrity.
- Replace a rope if it has any of the following:
  - Physical damage which impairs the function and strength of the rope
  - Kinks that could impair the tracking or wrapping of the rope around a drum or sheave
  - 6 randomly distributed broken wires in one rope lay
  - 3 broken wires in one strand of one rope lay
  - Loss of more than 1/3 of the original diameter of the outside wires caused by abrasion, corrosion, scrubbing, flattening or peening
  - Heat damage caused by a torch
  - Any damage caused by contact with electrical wires
  - Evidence that the secondary brake has been activated during an overspeed condition and has engaged the suspension rope.
- Prohibit the use of repaired wire rope as suspension rope.



# Suspended Scaffolds

WAC 296-874-300

## Rule

### WAC 296-874-30018

#### Make sure wire suspension rope connections meet these requirements

##### You must

- Only use eye splice thimbles connected with shackles or cover plates and bolts to join wire suspension ropes together.
- Make sure the load ends of wire suspension ropes are:
  - Equipped with proper size thimbles
  - Secured by eye splicing or an equivalent means.
- Make sure all swaged attachments or spliced eyes on wire suspension rope has been made by either:
  - The wire rope manufacturer

**or**

  - A qualified person.

### WAC 296-874-30020

#### Make sure wire rope clips are used properly

##### You must

- Make sure, if wire rope clips are used on suspended scaffolds, such as on the suspension ropes or support lines, that:
  - A minimum of 3 clips are installed
  - The distance between clips is at least 6 rope diameters
  - Clips are installed according to the manufacturer's recommendations.

– Continued–

Suspended  
Scaffolds



# Suspended Scaffolds

WAC 296-874-300

## Rule

### WAC 296-874-30020 (Continued)

#### You must

- Retighten the clips to the manufacturer's recommendations after the initial loading.
- Inspect the clips and retighten them to the manufacturer's recommendations at the start of each work shift.
- Make sure U-bolt clips aren't used at the point of suspension for any scaffold hoist.
- Make sure, if U-bolt clips are used, that:
  - The U-bolt is placed over the dead end of the rope
  - and**
  - The saddle is placed over the live end of the rope.

### WAC 296-874-30022

#### Prevent swaying of two-point and multi-point suspension scaffolds

#### You must

- Tie or use other means to keep two-point and multi-point suspension scaffolds from swaying, if an evaluation by a competent person determines it is necessary.



#### Note:

- Window cleaners' anchors **cannot** be used to secure scaffolds since they aren't designed to withstand the load.



# Suspended Scaffolds

WAC 296-874-300

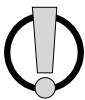
## Rule

### WAC 296-874-30024

#### Use emergency escape and rescue devices appropriately

##### You must

- Make sure devices whose sole function is to provide emergency escape and rescue aren't used as working platforms.



##### Note:

- Systems which are designed to function both as suspended scaffolds and emergency systems may be used as working platforms.

### WAC 296-874-30026

#### Protect suspension ropes from heat or corrosive substances

##### You must

- Shield suspension ropes from heat-producing processes.
- Make sure, when acids or other corrosive substances are used on a scaffold, that the suspension ropes are protected by at least one of the following:
  - Shielding
  - Treating to protect the rope from the corrosive substances
  - Making the rope of material that the corrosive substance won't damage.



# Suspended Scaffolds

WAC 296-874-300

## Rule

WAC 296-874-30028

### Take precautions while welding

#### You must

- Do the following to protect employees while welding on suspended scaffolds:
  - Use an insulated thimble to attach each suspension wire rope to its hanging support, such as a cornice hook or outrigger
  - Insulate excess suspension wire rope and any additional independent lines to prevent grounding
  - Cover the wire suspension rope with insulating material that extends at least 4 feet (1.2 m) above the hoist
  - Make sure any tail line that extends below the hoist is:
    - Insulated to prevent contact with the platform**and**
    - Guided or retained so it doesn't become grounded.
  - Cover each hoist with an insulated protective cover
  - Connect the scaffold to the structure using a grounding conductor that:
    - Is at least the size of the welding process work lead**and**
    - Isn't in series with the welding process or the work piece.
  - Shut off the welding machine if the scaffold grounding lead becomes disconnected
  - Make sure an active welding rod or an uninsulated welding lead isn't allowed to contact the:
    - Scaffold**or**
    - Scaffold suspension system.



# Suspended Scaffolds

WAC 296-874-300

## Rule

### WAC 296-874-30030

#### Prohibit use of gasoline-powered equipment on suspended scaffolds

##### You must

- Make sure gasoline-powered equipment is **not** used on suspended scaffolds.

### WAC 296-874-30032

#### Meet these requirements when using catenary scaffolds

##### You must

- Make sure catenary scaffolds have:
  - No more than one platform between consecutive vertical pickups**and**
  - No more than 2 platforms per scaffold.
- Make sure any platform that's supported by wire ropes has hook-shaped stops placed at each end of the platform that will prevent it from falling if one of the horizontal wire ropes breaks.
- Make sure wire ropes are:
  - Continuous and without splices between anchors**and**
  - Not tightened to the point that putting a load on the scaffold will overstress them.



##### Reference:

- For specific fall protection requirements for employees on catenary scaffolds, go to WAC 296-874-20056.

Suspended  
Scaffolds



# Suspended Scaffolds

WAC 296-874-300

## Rule

**WAC 296-874-30034**

**Meet these requirements when using float (ship) scaffolds**

### You must

- Support the platform with at least 2 bearers.
- Make sure each bearer:
  - Projects at least 6 inches (15.2 cm) beyond the platform on both sides**and**
  - Is securely fastened to the platform.
- Make sure rope connections won't allow the platform to shift or slip.
- Make sure scaffolds that only have 2 ropes used with each float meet all of the following:
  - There are 4 rope ends that are securely fastened to overhead supports
  - Each supporting rope is hitched around one end of the bearer, passed under the platform to the other end of the bearer, and hitched again
  - There is enough rope at each end for the supporting ties.



### Reference:

- For specific fall protection requirements for employees on float (ship) scaffolds, go to WAC 296-874-20056.





# Suspended Scaffolds

WAC 296-874-300

## Rule

### WAC 296-874-30036

#### Meet these requirements when using interior hung scaffolds

##### You must

- Suspend the scaffold only from the roof structure or other structural member, such as ceiling beams.
- Inspect the overhead supporting members and check to make sure they're strong enough before erecting the scaffold.
- Connect suspension ropes and cables to the overhead supporting members by:
  - Shackles, clips, or thimbles

**or**

  - Other means that meet equivalent criteria, such as strength and durability.

### WAC 296-874-30038

#### Meet these requirements when using multi-level suspended scaffolds

##### You must

- Equip scaffolds with additional independent support lines that meet all of the following:
  - There are the same number of support lines as there are connection points for the suspension ropes
  - The support lines are equivalent in strength to the suspension ropes
  - The support lines are rigged to support the scaffold if the suspension ropes fail.
- Make sure the independent support lines and the suspension ropes aren't attached to the same points of anchorage.
- Attach platform supports directly to the support stirrup and not to another platform.

Suspended  
Scaffolds



# Suspended Scaffolds

WAC 296-874-300

## Rule

**WAC 296-874-30040**

**Meet these requirements when using multi-point adjustable suspension scaffolds**

### **IMPORTANT:**

- This requirement applies when using multi-point adjustable suspension scaffolds, stonemasons' multi-point adjustable suspension scaffolds, and masons' multi-point adjustable suspension scaffolds.

### **You must**

- Make sure masons' multi-point adjustable suspension scaffold connections are designed by an engineer experienced in designing this type of scaffold.
- Make sure bridges between 2 or more scaffolds meet all of the following:
  - The scaffolds were designed to be bridged
  - The bridges are articulated
  - The hoists are properly sized.
- Make sure passage from one platform to another, without using bridges, is done only when the platforms are:
  - At the same height

**and**

  - Abutting.
- Suspend scaffolds from:
  - Metal outriggers, brackets, wire rope slings, or hooks

**or**

  - Other means that meet equivalent criteria, such as strength and durability.



# Suspended Scaffolds

WAC 296-874-300

## Rule

**WAC 296-874-30042**

**Meet these requirements when using needle beam scaffolds**

### You must

- Install scaffold support beams on edge.
- Use ropes or hangers for scaffold supports
  - One end of a needle beam scaffold may be supported by a permanent structural member.
- Securely attach ropes to the needle beams.
- Arrange the support connection to prevent the needle beam from rolling or becoming displaced.
- Securely attach platform units to the needle beams with bolts or equivalent means.



#### Note:

- Cleats and overhang aren't adequate means of attachment.



#### Reference:

- For specific fall protection requirements for employees on needle beam scaffolds, go to WAC 296-874-20056.

Suspended  
Scaffolds



# Suspended Scaffolds

WAC 296-874-300

## Rule

**WAC 296-874-30044**

**Meet these requirements when using single-point adjustable suspension scaffolds**

### You must

- Make sure 2 scaffolds that have been combined to form a two-point adjustable suspension scaffold meet the requirements of the section, Make sure two-point adjustable suspension scaffolds (swing stages) meet these requirements, WAC 296-874-30046.
- Make sure scaffolds, where the suspension rope between the scaffold and the suspension device isn't vertical, meet all of the following:
  - The rigging has been designed by a qualified person
  - The scaffold is accessible to rescuers
  - The suspension rope is protected from chafing at any point where it changes direction
  - The scaffold is positioned so that swinging can't bring the scaffold into contact with another surface.
- Make sure boatswains' chair tackle meets of all of the following:
  - It consists of correct size ball bearing blocks or bushed blocks
  - The blocks contain safety hooks
  - The rope is properly eye-spliced
  - The rope is either:
    - First-grade manila rope that has a diameter of at least 5/8 inch (1.6 cm)
    - or**
    - Other rope that has equivalent characteristics, such as strength and durability.

– Continued–



# Suspended Scaffolds

WAC 296-874-300

## Rule

### WAC 296-874-30044 (Continued)

#### You must

- Make sure boatswain's chair seat slings meet all of the following:
  - Are reeved through 4 corner holes in the seat
  - Cross each other on the underside of the seat
  - Are rigged to prevent slipping which could cause the seat to become out-of-level
  - Are made from fiber, synthetic, or other rope which have:
    - A diameter of at least 5/8 inch (1.6 cm)
    - and**
    - Characteristics equivalent to first grade manila rope, such as strength, slip resistance, and durability.
- Make sure the seat sling of boatswain's chairs used when a heat-producing process, such as gas or arc welding, is being conducted, is at least 3/8 inch (1.0 cm) wire rope.
- Securely fasten cleats to the underside of noncross-laminated wood boatswain's chairs to prevent the board from splitting.



#### Reference:

- For specific fall protection requirements for employees on single-point adjustable suspension scaffolds, go to WAC 296-874-20056.

Suspended  
Scaffolds



# Suspended Scaffolds

WAC 296-874-300

## Rule

WAC 296-874-30046

**Meet these requirements when using two-point adjustable suspension scaffolds (swing stages)**

### IMPORTANT:

- This section doesn't apply to two-point adjustable suspension scaffolds used as masons' or stonemasons' scaffolds.



#### Reference:

- For requirements for masons' or stonemasons' scaffolds, go to WAC 296-874-30040.

### You must

- Make sure platforms more than 36 inches (0.9 m) wide have been designed by a qualified person to prevent unstable conditions.
- Make sure platforms are one of the following:
  - Ladder-type
  - Plank-type
  - Beam-type
  - Light-metal type.
- Make sure the design of light-metal type platforms have been tested and listed by a nationally recognized testing laboratory if they:
  - Have a rated capacity of 750 lbs. or less

**or**

  - Have a length of 40 feet (12.2 m) or less.

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# Suspended Scaffolds

WAC 296-874-300

## Rule

### WAC 296-874-30046 (Continued)

#### You must

- Securely fasten the platform to the hangers (stirrups) using U-bolts or other means that satisfy the section titled, Make sure suspended scaffolds and scaffold components meet these strength requirements, WAC 296-874-30002.
- Make sure fiber or synthetic ropes are used with blocks that:
  - Consist of at least one double and one single block**and**
  - Have sheaves that fit the size of the rope used.
- Make sure employees move from one platform to another only when all of the following are met:
  - The platforms are at the same height
  - The platforms are abutting
  - Walk-through stirrups are used that have been specifically designed to allow employee passage.
- Make sure two-point scaffolds that are bridged or otherwise connected together when being raised or lowered meet both of the following:
  - The bridge connections are articulated
  - The hoists are properly sized.



#### Reference:

- For specific fall protection requirements for employees on two-point adjustable suspension scaffolds, go to WAC 296-874-20056.

Suspended  
Scaffolds

